***# 2. Obtain a video tape of one of your school sports teams in Action. Create a play-by-play description of a short segment of the videotape, explaining how momentum and kinetic energy change during impacts that take place in the segment.***

**HARD HIT**

[**http://www.youtube.com/watch?v=HATpkRK2G-I&feature=related**](http://www.youtube.com/watch?v=HATpkRK2G-I&feature=related)

During this play, the players and the ball start out with a zero velocity. When the play initializes the quarterback throws the football while moving at a constant velocity. Once the football connects with the player, there is an inelastic collision is formed, reducing the footballs kinetic energy and conserving its momentum. The mass of the player and that of the football unifies. However, the mass and velocity of the football is too minute to affect the mass of the player. Instead, the player moves at his own velocity minus the initial velocity of the football. Once the player caught the ball he was only able to move about a few steps before he was brutally tackled. The football tackle is partially elastic. Because we don’t know the masses of the players, we are unable to conjecture whether or not the velocity of the strike was amplified the least bit. However, the tackle was partially inelastic and the players momentum was still conserved. The player who was tackled had a kickback in his velocity by the tackler’s velocity. The reason why I think that the collision was partially inelastic is because the tackler only fully connected with the player for only a matter of seconds.